Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

without detriment to its continuity. Death, therefore, need not end our existence. "If, as the intra-atomic physics has shown us, there are more subtle modes of energy pervading nature than those which have been measured by the relatively crude methods of science . . . is it not probable that to these imponderable energies are to be attributed the heretofore incommensurable activities of life and mind? . . . If, as we have seen, life and death are processes and not terminal events, if physical death, like mental birth, covers the entire period of what is commonly called life, is it not rational to regard this lifelong drama of destruction as really but the obverse side of a constructive synthesis of personality whose pattern may be made out only in that world of intangible and invisible forces which science is just beginning to glimpse in the fluoroscope?" (p. 87).

Perhaps a word of apology is due to the author for an amount of criticism which may seem disproportionate. The criticism, however, is not intended to detract from the merit of his work, but to further, if possible, his aim to clarify issues. Whether or not it sets pragmatism in the light, a book of this kind deserves a welcome if it stimulates our thinking on fundamental questions.

B. H. BODE.

UNIVERSITY OF ILLINOIS.

Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit. Von ERNST CASSIRER. Berlin, Verlag von Bruno Cassirer, 1906–7. I. Bd., pp. xv, 608; II. Bd., pp. xiv, 732.

The purpose of this work is to describe the origin and development of the problem of knowledge in modern times from the Renaissance to Kant. This problem is for Dr. Cassirer the fundamental problem of modern philosophy. In fact, it is more than this; it furnishes a point of orientation for understanding the manifold tendencies of modern culture, for all the intellectual activities of modern times unite in the development of a new conception of knowledge (I, p. v). Such a history occupies no merely incidental place in the theory of knowledge according to Dr. Cassirer; it has at once a negative and a positive value. History, far better than mere analysis, shows the essentially transitory character of all concepts; it destroys at once 'the illusion of an absolute,' for the concepts which are absurd for one generation become the essential principles of knowledge for another. The essential concepts of science thus appear for what they are, constructions of thought, and this is the beginning of philosophical wisdom according to Dr. Cassirer. The problem which history has thus raised, history alone can furnish the means for solving; only the historical development of concepts can furnish the adequate grounds of criticism. The view which any period takes of reality is the expression of its ideal of knowledge. The history of the origin and development of modern conceptions, and of the many sided conditions which have given rise to the modern system of knowledge, is the only clue to the tangled web of concepts which determines our own view of the world. In this manner Dr. Cassirer proposes to unite the systematic and the historical problems. "Thus history should become the completion and the test of the results furnished us by an analysis of the content of the sciences" (I, p. 8).

It is clear that an historical analysis so far-reaching must go far beyond the study of concepts as they develop in the individual mind to a study of mental development as one finds it writ large in the history of the race. The history of philosophy itself is far too narrow for such a purpose, for explicit theories of knowledge merely bring to expression concepts that have long been latent in the thought of a period. Thus, for example, the use of exact scientific methods by Galileo, even though he had no systematic theory of knowledge, is of far greater significance for the development of the problem of knowledge than the logical work of his contemporary Campanella. Similarly intellectual movements such as Italian Humanism or French Scepticism, which have relatively little significance for systematic philosophy, are of great importance in the history of the problem of knowledge, for they indicate the growth of a new intellectual point of view of far deeper significance than any philosophical system. The origin and development of the exact sciences is the fact of greatest importance for the history of the problem of knowledge. The mental sciences, especially metaphysics, have a significance more difficult to estimate; metaphysics is important in so far as it raises problems connected with the relation of knowledge to its object. "In general, the history of the problem of knowledge should mean for us not so much a part of the history of philosophy . . . as the whole field of history regarded from a particular point of view" (I, p. 14). The natural termination of such a history is the philosophy of Kant, for with his system the laws of knowledge itself became the sole object of the problem of knowledge and from his philosophy contemporary problems take their rise. In fact, Kant's system stands in much closer relation than is generally supposed to the science of the eighteenth century, and by showing how Kant brings to conscious expression the various tendencies of this science, one obtains the surest means for the understanding and criticism of his system (I, pp. 14 f.).

From this outline of Dr. Cassirer's purpose the reader sees that the work aims to be encyclopædic in scope. The history of philosophy, the history of science, and certain aspects of the history of civilization generally are laid under requisition to furnish the materials, and the result is something over eleven hundred large pages of text, with an additional two hundred pages of notes, references, and quotations. The mere bulk of the work, therefore, offers a serious problem to the reviewer. To give even a bare statement of Dr. Cassirer's conclusions would extend far beyond the limits of an ordinary review, even if such a statement could be made. As a matter of fact, it would be exceedingly difficult to make an objective summary of results, for the work is genuinely historical in spite of the author's avowed systematic purpose, and historical criticism does not lend itself readily to the making of general formulæ. The length of the book, however, is less a reason against this kind of general treatment than the excellence of it. Dr. Cassirer has produced a work of indubitable value; it is not only broad in scope but thorough and accurate in method. His equipment for historical work must be excellent; his labor has evidently been unremitting, and the result is scholarly in a high degree. To omit Dr. Cassirer's closely reasoned interpretations and criticisms for a summary of results would give but a poor idea of what his work is like. It has seemed best to the present reviewer, therefore, to give merely an outline of the contents of the two volumes, and to select for careful review a single part of reasonable length, the fifth book dealing with English Empiricism.

After a brief account of the problem of knowledge in Greek philosophy in the second part of the Introduction,—Dr. Cassirer believes that "the whole progress of Greek speculation was determined and guided by the continuous and consistent development of its concept of truth" (I, p. 23), —the author opens his work with a book entitled "The Renaissance of Knowledge." He begins with Nicholas of Cusa who, as he says, while treating of the traditional philosophical and theological problems of the Middle Ages, yet gives them a turn in the direction of modern thought. In Nicholas is found the effort to preserve the purity of the divine substance and at the same time to recognize the worth of the individual in all its particularity,—a tendency characteristic of the entire Renaissance. The second chapter deals with Humanism, the manifold forms of which, however different in content, converge toward a new conception of knowledge. Here Dr. Cassirer discusses a long list of thinkers under such captions as the Revival of Platonism, the Reform of Aristotelian Psychology, the Destruction of the Scholastic Logic, etc. The third chapter treats of French Scepticism, chiefly of Montaigne.

Book II is entitled "The Discovery of the Concept of Nature." The first chapter is devoted to the *Naturphilosophie* of Paracelsus, Telesio, Campanella, and a number of lesser thinkers. Chapter II on "The Origin of Exact Science," is perhaps the most noteworthy in the first volume. It is an excellent account of the rise of the scientific conception of nature and of scientific method in the hands of Leonardo da Vinci, Kepler, and Galileo. Dr. Cassirer shows admirably how the formless empiricism of the *Naturphilosophie* became fruitful only when controlled by the conceptual processes of geometry, thus giving rise to scientific induction, the observation of nature subject to hypothesis. The section on Galileo is an excellent account of the manner in which the conception of nature as an orderly system of phenomena terminated in the scientific definition of matter and motion and in the concept of natural law. The discussion is a remarkably enlightening account both of the history and the logic of the general principles of natural science. The last chapter in this book is devoted to Bruno.

The third book takes up Descartes, together with Pascal and the Cartesians, and the fifth is devoted to Spinoza and Leibniz. Here Dr. Cassirer is dealing with subjects which he has already partly covered in his earlier works, *Leibniz' System*, 1902, and *Descartes' Kritik der mathematischen und naturwissenschaftlichen Erkenntnis*, 1899. Dr. Cassirer impresses one as being less sympathetic toward Spinoza than toward Descartes and Leibniz, perhaps because he finds Spinoza's system less thoroughly dominated by the results of exact science. Spinoza stands midway between the conception of nature as a living cosmos (the view of *Naturphilosophie*) and as a purely geometrical system. Two noteworthy points are made regarding the historical relations of Spinoza's system: The dependence of his early philosophy on Campanella rather than Bruno, and the relation of his theory of knowledge, as well as his social philosophy, to Hobbes.

Book VI, entitled "From Newton to Kant," is an unusually complete account of the development of fundamental physical concepts in the philosophy and science of the eighteenth century. In passing from the theories of knowledge of Leibniz and the English philosophers to the beginning of Kant's philosophy, says Dr. Cassirer, one is conscious of a gap in the historical relations; the problems have changed, though Kant's exposition takes no explicit account of the fact. This seeming isolation is merely apparent, however; Kant's originality lay not in the discovery of a single new principle but in putting the problem of knowledge as a whole on a new plane. The change in the status of individual problems was not due to Kant but to the science and philosophy of the eighteenth century. This relation has been obscured by the manifold and contradictory intellectual interests of the period; but this very 'eclecticism' drove the more logical minds to a reconsideration of the relations between mathematics and metaphysics, with the result that a new concept of knowledge emerged. The bulk of the book is given up to a discussion of space and time, in natural science, in metaphysics and theology, and in *Naturphilosophie*, and there are also chapters on the principles of contradiction and of sufficient reason and on psychology. In the first chapter, on "The Problem of Method," Dr. Cassirer shows in a most striking manner how the so-called Kantian distinction between the phenomenal and noumenal worlds is really current in theories of scientific method throughout the eighteenth century. The last book discusses the Critical Philosophy. The first chapter on Kant's pre-critical works gives an admirable account of the origin of the system.

The fifth book, entitled "Das Erkenntnisproblem im System des Empirismus," opens with two rather brief chapters dealing the first with Bacon, the second with Gassendi and Hobbes: then follow three longer chapters on Locke, Berkeley, and Hume; and the book closes with an appendix dealing with English philosophy beyond the limits of Empiricism. Here Dr. Cassirer discusses Herbert of Cherbury, with whom he connects the Scottish School; Sir Kenelm Digby, who represents the reaction of the new physical science upon Aristotelianism; Ralph Cudworth, who represents the Cambridge Platonists, and two other idealists,—John Norris and Arthur Collier,—who show the influence of Malebranche; and finally Robert Boyle, who is here briefly treated in order to introduce the problems raised by the long list of natural scientists from Newton to Kant (Book VI). The English associationists are postponed to Chapter IV of Book VI.

No interpretation of Bacon's philosophy could well depart farther than Dr. Cassirer's from the traditional English admiration of that philosopher as the 'founder' of empirical science. In fact, as Dr. Cassirer shows, Bacon's conception of scientific method was thoroughly scholastic. In the value which he set upon empirical reality and in his ideal of a science of nature, he is indeed at one with the great scientists of his time, but the methods by which he proposes to realize such a science are hopelessly inadequate (p. 131. All references are to Vol. II). In Bacon one finds little of that enthusiastic trust in the power of the senses and intellect to grasp reality that characterizes the Continental Renaissance. The purpose of his method is to limit rather than to stimulate the activity of the mind, and he is quite as distrustful of the senses as of the understanding. In fact, as Dr. Cassirer interprets him, Bacon's one great contribution to the growth of the problem of knowledge is his demand for a rational method of empirical investigation; only when the rough beginnings of sense are controlled by understanding does a truly scientific experience arise (p. 120). He wholly fails, however, to grasp Galileo's conception of hypothesis, which is the true realization of such a method. His theory of 'forms' implies the analysis of phenomena into fixed, objectified qualities, such as warm and cold, which he conceives to be the true elements of nature, and which are wholly incapable of being quantitatively related to one another. The number of these qualities is conceived to be limited, and hence it is that Bacon divorces observation and theory; the enumeration of qualities can be completed before explanation begins. He thus contradicts his own demand for a rational method. Between Bacon's method and his ideal of empirical science there is a complete discrepancy; he is the founder neither of modern philosophy nor of modern empiricism.

The serious effort to reduce empirical knowledge to its psychological elements could be first made only by thinkers imbued with the methods and results of modern science. This scientific interest the modern founders of the sensualistic theory of knowledge,—Gassendi and Hobbes,—shared with Descartes and Leibniz, however different in other respects their philosophy may be. For Gassendi sensualism stands in an immediate relation to atomism; sensation is an 'image' thrown off by the object itself and taken up into consciousness. Consequently error originates only in judgment. The difficulties of this position with reference to scientific method are evident. No conceptual process is taken account of by which the isolated images can be united in a system such as science must assume, for judgment is merely a process of falsifying the data of sense. The *raison d'être* of atomism is, in fact, destroyed, for its function, with Democritus for example, had been precisely to afford a means of escape from the contradictions of sense. In this respect, also, Gassendi is at variance with the principles of scientific method laid down by Descartes. It is his naive parallelism of perception and reality which makes Gassendi's system instructive. It brings clearly to light the contradiction with which later Empiricism had to struggle and which it never fully overcame. "The resolution by Empiricism of things into sensation is only apparent; on the contrary it is the sensations which for it become things" (p. 143).

It was Hobbes who first brought the strict methods of modern science into relation with Empiricism. However weak Hobbes's conclusions may have been, he had nevertheless clearly grasped the principles of scientific method; in fact, his main claim to originality lies in his effort to show, on general logical grounds, that the discovery of mathematical relations between phenomena, the method which Galileo had restricted to physics, is in fact the sole possible method of all knowledge. Only in cases where a complex whole can be analyzed into elements and reconstructed from these, only where quantitative relations can be discovered, is knowledge possible. Hence it is that for Hobbes the sole object of philosophy is Body, and that the qualities of body must be reduced to motion. "Motion is the true mediating concept (*Mittelbegriff*), for on the one hand it is the substance and ground of all real events and on the other hand it is the fundamental concept of the mind which we manifest in the construction of purely ideal knowledge apart from all actual existence" (p. 149).

The essential problem for Hobbes's logic, therefore, is the transformation of the empirical content of the exact sciences into a purely rational content. This is the motive for his 'Nominalism.' His ideal of knowledge is purely deductive, and deduction is impossible as long as a sensible datum has to be taken into account. True knowledge is possible only of things which the mind itself creates, and though for Hobbes this construction is governed not by laws of thought but by the will, the 'word' is nevertheless conceived by him to be the prop of rational knowledge. His nominalism is meant to free thought from the accidents of purely empirical knowledge, which is governed by the irrational association of ideas. In strict logic, therefore, such concepts as space, time, and body, should be intellectual constructions made to introduce unity into the manifold of impressions. Here, however, Hobbes reproduces the fallacy already noted in Gassendi. Body and motion become absolute existences; sensation and thought are merely products of them. Science and truth deal merely with subjective 'signs' and from these reality is separated by an impassable gulf. It is indeed true, as Dr. Cassirer says, that all the usual party names fail to describe Hobbes; from Dr. Cassirer's interpretation one might well doubt whether Hobbes ought to be included in an account of Empiricism.

The philosophy of Locke marks a turning point in English philosophy because with him the problem of knowledge becomes the central problem of philosophy. Not existences, sensuous or supersensuous, constitute the object of investigation, but the origin and validity of knowledge itself. It is true that Locke did not discover this problem, for Descartes had stated it with perfect clearness and Geulincx had made it the chief object of philosophical investigation (p. 164). Nor was Locke's 'historical plain method' wholly new, for a certain genetic interest is to be found in the psychology of Hobbes, as well as in Gassendi and Malebranche. This earlier psychology, however, was merely a special science and other non-logical problems, for example those of physiology or metaphysics, had been bound up with the account of consciousness. With Locke, however, the problem is to observe and analyze psychic phenomena, and to build up knowledge from the content of pure experience, without reference either to the physical or the metaphysical ground of consciousness (p. 166). This indicates the motive of Locke's attack on innate ideas, ready-made principles which would put a limit to the genetic derivation of ideas. For Locke such a derivation is the indispensable means of logical analysis (p. 168). Locke's originality lies, therefore, in his combination of the critical problem with the genetic method.

While there is no doubt that, generally speaking, this account of Locke's method is correct, it seems to the reviewer that there is here included an ambiguity even more fundamental than that which Dr. Cassirer goes on to point out in Locke's use of 'reflection.' It is scarcely correct to state unequivocally that Locke's process of deriving ideas is genetic. It is indeed true that Locke proposes to find the 'origin' of all ideas in sensation or reflection, but it would scarcely be maintained, I believe, that Locke gives any serious attention to the exact temporal order in which mental functions appear and reach maturity. The problem for Locke is rather analytical than genetic. The complex ideas are broken up into their simplest elements, and the sensation is the ultimate datum beyond which analysis cannot go. To explain the origin of an idea means to show how it can be made by building together the simple elements. Ignoring all questions of the relation of mind to body, Locke proposes to find by direct observation of the mind itself the various simple ideas that are contained in all our more complex processes of thought.

Throughout Locke's account of the origin of ideas, therefore, there runs an ambiguity important to notice. In general terms it is the common confusion which takes the logically simplest elements for the temporally first stages of a process. The results of this confusion are far-reaching in Locke's system. Generally speaking, the growth of an idea means for him the construction of it out of simple elements. Sensations and ideas are structural entities which, like mental atoms, unite by mechanical aggregation. Thus Locke defines an idea as "the object of the understanding when a man thinks" (I, i, 8). And again, in the criticism of innate ideas, he assumes that such an idea must be consciously present in the minds of all persons at all times. It is this conception of the idea as structural that makes his criticism inapplicable to the theory as it was really held by the classical Rationalists, for a logical function may clearly be of fundamental importance in the growth of knowledge without being discoverable as a separate bit of mental content.

And yet Locke's adherence to the structural point of view is by no means consistent. Combinations of simple ideas are always giving rise to ideas that cannot possibly be explained as aggregations of elements. In a word, Locke is constantly assuming growth or development in the proper sense of the term; his method is likely at any moment to become really genetic when he is showing how the mind rears logical structures on the data of sense. Thus, when Locke derives the idea of solidity, together with such fundamental concepts as impenetrability and impulse, from the bare sensation of pressure (II, iv), or the idea of cause from perceiving that fire melts wax (II, xxvi, 1) he has clearly gone far beyond mere analysis. These simple experiences are not in any sense elements of the ideas derived from them, though they may very well be genetically elementary cases of our use of these categories.

It is in the continual see-saw between the structural and the functional points of view that the explanation is to be found for most of the paradoxes in Locke's derivation of ideas. Here too is to be found, I believe, the root of the ambiguities which Dr. Cassirer has so clearly pointed out in Locke's conception of reflection. Had Locke adhered strictly to the method of analysis, he would have had no need for reflection as a second source of ideas. If one undertakes the work of introspection at all, one must assume that it is possible to observe one's mental states, whether they are sensations or processes of purely mental origin, and clearly no separate faculty need be assumed to show us the latter. This may be illustrated by the disappearance, noted later by Dr. Cassirer (p. 203), of reflection from Berkeley's system. In truth, however, reflection, which in the beginning is merely the internal counterpart of sensation, grows under Locke's hands as the functional aspect of his procedure comes more in evidence. The assumption that ideas may be got from "the perception of the operations of our own mind within us" (II, i, 4) necessarily implies reference to functional activities not contemplated by the analysis of consciousness into its structural elements.

This development of the significance of reflection is admirably shown by Dr. Cassirer in his analysis of Locke's treatment of infinity (pp. 172 ff.). Locke starts by explaining that the idea of infinity arises merely from the voluntary power of the mind to add finite quantities together without reaching a limit beyond which addition is impossible. This derivation, however, is by no means adequate, for the conception of infinity implies not merely that no limit has been reached but that no limit is possible. As Locke proceeds, therefore, the idea of infinity ceases to be a shadowy composite of an indefinite number of finite quantities and takes on more and more the character of a mental law for the composition of quantities (p. 176). Here, as Dr. Cassirer well remarks, reflection appears not as internal sense but as the logical opposite of sense, the source of an idea that can in no way be derived from sense. It brings into consideration those functional activities of consciousness which are excluded from the merely structural composition of ideas. The same function is performed by reflection in the derivation of such fundamental concepts as space, time, number, and force (pp. 176 ff.). Reflection becomes more and more the criterion and control of sensation (p. 182).

The standing difficulty in the interpretation of Locke's system is, of course, the relation between Book IV of the *Essay* and the earlier books. After Locke has proved exhaustively that all our ideas are derived from experience, the reader is surprised to find that experience avails nothing for knowledge. As Dr. Cassirer says, sensation and reflection are superseded by an entirely new faculty, the perception of relations between ideas, and on this knowledge is now made to depend (p. 187). In consequence, true knowledge is limited by Locke to mathematics and morals, where only conceptual relations, not real existence, are in question, and a science of bodies is impossible. Locke is an empiricist "from resignation" (p. 190); his ideal of knowledge is thoroughly deductive and induction is a poor substitute, where nothing better is to be had. Between the two no connection can be established; they stand side by side, the one valid but applicable only to a limited field, the other existing only on sufferance but controlling most of our so-called knowledge.

No doubt there is a contradiction in Locke's system at this point which defies solution, but it seems to the reviewer that a certain light is thrown on the difficulty by applying to it what has been said above about the structural and the functional factors in Locke's method. His conception of an idea is thoroughly ambiguous. It means on the one hand an objectified mental structure and on the other functional relationships not expressible in terms of imagery. In so far as the ideas are considered as mental objects, they remain separate and distinct entities between which no logical relation can subsist. But because they bear the impress of logical functions, they can, in the cases where Locke chooses to elicit it, develop permanent and necessary relations among themselves. In a word, the double nature of the ideas made it possible for them to be considered in either of these two ways, and Locke follows the one or the other according to his convenience.

The difficulties of Locke's system come to a focus in the idea of substance, the discussion of which closes Dr. Cassirer's account of Locke (pp. 193 ff.). The gulf between sensuous perception and the perception of ideal relations constitutes a cleft also between knowledge and reality. Knowledge is possible only where external existence is not in question. That simple ideas correspond to real objects is for Locke merely a dogma, and in spite of his repeated assertions that our certainty of objective existence lasts only so long as the sensation lasts, he really assumes a permanent objective world in no way accounted for in his system. In fact, Locke fails to confine himself to an account of experience irrespective of metaphysical assumptions. This failure appears most clearly in the treatment of the idea of substance. That there is no perception of substance as such Locke is well aware; it is a "something, I know not what" in which qualities inhere. Nevertheless the mind clings tenaciously to it, and in fact, as Locke admits, it is essential to objective knowledge. If we had a true idea of substance, Locke says repeatedly, we might attain that intuitive insight into the co-existence of qualities which experience can never give us. In short, Locke has completely reversed his position. Instead of discrediting the idea of substance because it has no empirical justification, he now discredits empirical knowledge because it cannot attain the ideal set by a concept. Substance has become metaphysical reality, which the weakness of our faculties will not allow us to grasp.

The contradiction in Locke's system thus comes clearly to light, a contradiction which, as Dr. Cassirer says (pp. 198 f.), might have been avoided had Locke held firmly to his own assertion that the relations between ideas may be clearer than ideas themselves; had he, in short, held to the functional rather than the structural point of view. The difficulty is admirably stated by Dr. Cassirer: "If substance is to possess genuine meaning and validity, it must appear in consciousness as a 'something,'—this is the unquestioned assumption,—it must enter sensuously as a separate image. Merely to express this demand, however, is to show the impossibility of fulfilling it. What the conception of substance means can be adequately expressed in no separate content of inner or outer perception. What here comes to light, however, is not a deficiency in the concept of substance itself, but a deficiency in Locke's way of putting the question. If substance, instead of being conceived as a necessary function for the system of knowledge, is to be sought for as a separate physical or psychical object, nothing is left of it except a pale and formless shadow" (p. 198). "The result of Locke's critique is in contradiction with its starting point. . . . If the method of analyzing ideas is to gain unlimited application and recognition, the problems based on it must first be reformulated. The concept of reality, as well as that of knowledge, must be completely transformed" (p. 199). The progress of Empiricism in the hands of Berkeley and Hume was determined by their solution of these difficulties.

Expressed briefly, the transformation of Locke's system which is required by his method is as follows: The conception of external reality as a condition and source of experience must be given up: it must be derived from sensuous experience as a necessary psychological outgrowth of that experience (pp. 200 f.). This fact Berkeley has grasped even in the *New Theory of Vision*, where the visual perception of space is explained as a relation between visual 'signs' and tactual space perceptions. Stated more generally, bare perception and objectivity do not coincide; objectivity means only the power of one idea to stand as the symbol of another. Ordinary experience of an objective world is for Berkeley, therefore, a construction, not a datum, and this construction is a psychological problem, not as for Descartes one resting upon mathematical principles (pp. 203 ff.). Habit and custom, not logical relations between ideas, are the forces on which the construction of experience depends.

In these principles of method lie the conclusions which Berkeley deduces with strict logic regarding abstract ideas, especially that of matter. If idea be taken strictly as a structural part of pure experience, an idea can clearly never be universal; as Berkeley insists, universality can be only the power of one idea to represent another. Similarly the reality of an empirical object exists only as a possibility or expectation of other perceptions. The problem of science is not to discover properties of an external matter but only to clarify experience itself. The distinction between truth and illusion is not destroyed but it concerns solely relations between ideas. The conception of natural law, therefore, as Dr. Cassirer points out (p. 217), is an indispensable correlate of Berkeley's theory of 'signs.' The critical value of Berkeley's conclusion is indubitable; Kant himself scarcely goes beyond Berkeley in showing the difficulties of the representational theory of knowledge (p. 216). But the question remains over whether his method offers the means of establishing those conceptual relations within experience on which his view of objectivity depends.

Nowhere is Dr. Cassirer's criticism more clear and incisive than in his discussion of this point (pp. 219 ff.). Berkeley's criticism of abstract ideas is directed solely at Locke's theory of abstraction and does not touch the deeper question of conceptual relation. The classical Rationalists had never maintained that universals could be justified as mental images. When Berkeley insists, therefore, that universality lies in the power of one idea to 'represent' another, the crux of his position is the conception of representation, and this is thoroughly ambiguous. The only form of relation which Berkeley's method contemplates is the association of ideas, but in reality representation is given a meaning far more extended. When he says, for example, that "a man may consider a figure merely as triangular," even though he has no abstract idea of a triangle (*Principles*, Intro., § 16), he has clearly assumed a mental power of which the associational psychology gives no account. This defect in

Berkeley's method is perhaps most clearly illustrated in his discussion of mathematics, but in fact empirical science offers an almost equal difficulty. According to the principles of his idealism, Berkeley must here explain that permanent and necessary order in experience on which objectivity rests, but this he cannot do. Conceptions such as object, motion, etc., cannot be explained by equating them with sensible images, or as associations of such images. Berkeley's method results in "a purely atomic conception of the mind; every true content of knowledge must resolve itself into discrete elements and be reducible to ultimate sensible impressions of which it is composed" (p. 224), a method which destroys not only matter considered as a metaphysical entity but empirical objectivity as well. Berkeley is prevented from feeling this lack of an objective ground for phenomena only because he falls back upon his own idealistic metaphysics. His conception of experience is not self-sufficing but must be supported by reference to the will of God.

This excursion into metaphysics is at once necessary to his system and destructive of the purely empirical method with which he starts. The ego and its activities opens to Berkeley a new source of knowledge not confined to ideas. Causal connection, which he denies to natural science, appears in his metaphysics. This tendency of Berkeley's thought, which is traceable in the first edition of the *Principles* and which grows stronger in his later work, culminates in the transformation of the system in *Siris*. With an account of this transformation Dr. Cassirer concludes his chapter on Berkeley.

The tradition of Berkeley's early philosophy is carried forward by Hume. As Dr. Cassirer has shown, the assumption by Berkeley that knowledge consists in connections between ideas implies the assumption of a uniformity in the order of ideas. Otherwise the system of 'signs' would be indecipherable. This uniformity, however, is based by Berkeley not on experience itself but upon the will of God. In fact, if we consider experience only as it is in and for itself, no proof of such an order can be given. Here, then, according to Dr. Cassirer's interpretation, we have the root of Hume's scepticism. For Hume has neither Berkeley's theological sanction for the order of ideas nor Locke's naive trust in the correspondence between ideas and reality. Beyond experience Hume has no support for knowledge, and experience itself, as Hume interprets it, cannot justify the validity of the empirical order. The problem is consequently transformed. All that can be done is to explain the psychological forces which inevitably lead us beyond the impressions of sense. The conceptions of substance, necessary connection, and personal identity appear therefore in Hume's philosophy as fictitious ideas of the imagination.

Hume accepts to the full Berkeley's criticism of abstract ideas and in fact carries it a point further. The power of one idea to represent another is no longer insisted upon and thus vanishes the last vestige of the assumption that universality can be conceived as psychological content. Only words, because their meanings are not perfectly definite, can have a general significance. The valid idea is therefore perfectly individual and can be traced back to a definite impression. "So long as there remains in our so-called knowledge any residuum which is not resolved into individual sensations and groups of sensations, so long we may be sure that we have not yet penetrated the circle of the genuine facts of knowledge" (p. 248). Here then we have what serves Hume as a test of validity; every alleged idea must be equated with an impression or derived as an illusory idea from the imagination. It may be suggested that Dr. Cassirer might have discussed at this point the important principle which Hume develops first in connection with his discussion of abstract ideas (*Treatise*, I, i, 7) and which he reverts to frequently thereafter, the principle "that whatever objects are different are distinguishable, and that whatever objects are distinguishable are separable by the thought and imagination." Hume's criticism of mathematical knowledge, which Dr. Cassirer discusses in the first division of his chapter, may be passed over briefly. Hume's denial of exactness to geometry is strictly in accord with his principles. If geometry deals with our perceptions of space, it is as little an exact science as if it dealt with existing figures. The traditional defense of its exactness,—that it is concerned with ideas only and not with objects,—is of no avail if ideas be conceived only as impressions of sense. Hume is perfectly logical when he insists that the conceptions of exact mathematics are as little to be found in perception as the substantial forms of scholasticism (pp. 253 f.). Hume here omits to add a psychological explanation of the illusion of exactness. At the same time, as Dr. Cassirer shows, Hume's theory of space and time is inconsistent with his own principles. That no impression of space and time as such is given Hume is well aware; they are not impressions but ways of relating impressions. Two courses therefore are open to Hume: either to regard space and time as mere inventions of imagination or to give up his principle that for every idea an impression must be found. In fact, he does neither and his deduction of space from the combination of colored and tangible points obviously begs the question. It is plausible only if the points have position, *i. e.*, are already spatially related (pp. 256 ff.). Finally, Hume's attempt to establish arithmetic and algebra as the only exact sciences is shown clearly to go beyond his empirical principles (pp. 258 f.).

The true center and most genuinely fruitful part of Hume's philosophy Dr. Cassirer, like most critics, finds in his theory of causality. Here Hume's originality shows at its best, for here he brings to light a new philosophical problem. The point, as Dr. Cassirer sees it, is not that Hume shows the purely empirical character of the causal relation; ancient scepticism had shown this. Hume's problem lies deeper, for he asks: What is the ground of all empirical inferences? And his sceptical answer to this question raises the still more far-reaching problem: What is the ground of experience itself? The mere concept of an 'experimental inference,' Hume insists, involves a *petitio principii*, for all induction depends on the postulate that the future will be like the past, and clearly neither induction nor deduction can prove this. To interpret Hume, therefore, as reducing causal inference to mere probability is to miss his point entirely. His principles leave no more room for probability than for complete certainty. "The positive and fruitful substance of his thought lies simply and solely in his scepticism" (p. 264).

Dr. Cassirer's criticism of Hume's theory of causality is ingenious but impresses one as being less satisfactory than most of his criticism. He points out that, though Hume may be willing to give physical science over to scepticism, he undermines his own philosophy when the same fate overtakes psychology. Yet Hume's scepticism proves, if it proves anything, the impossibility of all induction. How, then, can it fail to invalidate Hume's most fundamental psychological principle,—viz., that for every idea there must be a corresponding impression? Hume's scientific practice is in contradiction with his theory of induction. The result of this contradiction, as Dr. Cassirer believes, is to drive Hume into a distinction between unphilosophical probability and probability based on scientific observation, a distinction which clearly has no justification in Hume's principles (pp. 265 ff.).

There can be no doubt, of course, that if Hume's theory of induction be taken literally, all inductive reasoning, in psychology as well as in physics, is without foundation. But this amounts really to a general argument against all scepticism. If the capacity of experience to yield valid conclusions be denied, then, for him who denies it, all conclusions, sceptical or otherwise, must be groundless, and the logical course of conduct for the sceptic would be to draw no more conclusions. But if he refused to be bound by logic in this case he might still claim to be a consistent sceptic. In a word, Dr. Cassirer's criticism seems to answer Hume with a *tu quoque*, always an unsatisfactory sort of refutation.

Moreover, Dr. Cassirer seems to me to have misinterpreted the section "Of Unphilosophical Probability" (*Treatise*, I, iii, 13), which he quotes to show that when scepticism threatened psychology Hume introduced an illogical distinction between popular and scientific probability. It is to be noted that Hume is rather fond of this antithesis between the philosophical and the unphilosophical; thus, to mention only two examples, there are philosophical and unphilosophical relations and a philosophical and an unphilosophical idea of external existence. His purpose is not generally, however, to escape a sceptical conclusion by taking refuge in a philosophical as distinct from a popular mode of reasoning. On the contrary, this is Hume's favorite device for showing the philosophers that their boasted accuracy is on exactly the same level of certainty as common sense. In the case of probability, also, this seems to me to be Hume's purpose. After discussing the kinds of probability which philosophers accept as a reasonable foundation for belief, he goes on to say that "there are others, that are derived from the same principles, though they have not had the good fortune to obtain the same sanction" (Selby-Bigge, p. 143). Popular analogical reasoning rests on precisely the same psychological forces,—the increased vivacity of an idea through its association with an impression,—that govern all other conclusions from causality. Hume's argument throughout this section is directed toward showing the psychological causes of belief rather than the logical grounds of validity. Even in the case where he speaks of the effect of a general rule upon assent, and the distinction between essential and non-essential cases, a passage which Dr. Cassirer quotes as decisive for his interpretation, Hume adds: "Sometimes the one [understanding], sometimes the other [imagination] prevails, according to the disposition and character of the person" (Selby-Bigge, p. 150). This shows clearly the psychological nature of Hume's discussion.

I do not mean to argue that Hume's scepticism is perfectly consistent throughout, or that he succeeds in reducing the mind to a 'bundle of sensations,' or perfectly gets rid of such fundamental conceptions as substance, necessary connection, etc. Probably no perfectly consistent scepticism does or can exist. It is an error in interpretation to hold, however, as Dr. Cassirer does, that Hume's scepticism "finds its limit on the threshold of his psychology" (p. 266). The truth is that from the beginning Hume does not succeed in preserving his scepticism in perfect purity. To take only one fundamental point as an example, would any critic maintain that Hume really reduces the distinction between impressions and ideas merely to a difference in the degree of vivacity? The impression certainly has a sort of tacit objective reference without which the tracing of ideas to impressions as a standard of validity would not be plausible (cf. T. H. Green's General Introduction, § 201). The essay on Miracles, which

Dr. Cassirer analyzes in this connection, is a very good example of the way in which Hume assumes a greater regularity in nature than experience justifies. The difficulty which Dr. Cassirer raises regarding Hume's psychology is merely one example of what a close analysis shows almost anywhere in Hume's system. The fact is that Hume was treating the mind with a radically inadequate method and the essential contradiction in his system lies in the disparity between method and object. Hume's greatest historical merit lies in his proof that the method is impossible.

This conclusion, however, does not differ from that which Dr. Cassirer reaches in his excellent analysis of Hume's criticism of objective existence. Here Hume's adherence to the two elements of his theory of knowledge,—perceptions and fictions of the imagination,—becomes almost purely formal. The function of imagination is here stretched far beyond the limits reached in the production of the idea of necessary connection; for here, as Hume himself insists, the imagination creates an idea which habitual connection can in no wise explain. The whole purpose of assuming objective existence is "to bestow on the objects a greater regularity than what is to be observed in our mere perceptions. . . . But as all reasoning concerning matters of fact arises only from custom, and custom can only be the effect of repeated perceptions, the extending of custom and reasoning beyond the perceptions can never be the direct and natural effect of the constant repetition and connection, but must arise from the coöperation of some other principles" (*Treatise*, I, iv, 2, Selby-Bigge, pp. 197 f.). Imagination thus acquires a creative function, and the apparently clear distinction between perceptions and illusions becomes incapable of application. The two elements are so interwoven in our ordinary experience that it seems utterly impossible to disentangle them, and thus it becomes impossible to apply the sensuous criterion of validity. The conclusion of Hume's philosophy negates the assumptions from which he starts. "He starts from the impression as sure and valid matter of fact, only to find that, measured by this criterion, not only mathematical but finally empirical knowledge entirely disappears. In his conclusion lies the really productive result of his theory of knowledge. The notion of establishing the mind's pure modes of relation upon sensuous impressions,—the notion which governed Hume's original statement of the problem,—is done away with forever by the results of his philosophy. What Hume experiences is the downfall of the sensualistic principle of knowledge, which, of course, he is forced to picture as the overthrow of knowledge in general" (pp. 282 f.).

With the discussion of external existence Dr. Cassirer closes his chapter on Hume. It is perhaps worth noting that he omits all mention of

Hume's criticism of personal identity. No doubt he felt that this was so like in principle to the explanation of external existence that it required no additional discussion. It is true, of course, that an analysis of it would have served only to enforce the conclusion drawn above and not to modify it. Hume's position on this point, however, shows very clearly his relation to Berkeley, for his criticism destroys the assumption on which the metaphysical part of Berkeley's system rests. The resolution of the self into 'a bundle of sensations' marks the final triumph of Hume's atomic point of view; it is the last word of the structural method. Hume thus develops Empiricism to a point from which Berkeley recoiled, and the greater fruitfulness of Hume's system is another proof of Höffding's aphorism that "Perfect consistency never goes unrewarded."

GEORGE H. SABINE.

LELAND STANFORD JR. UNIVERSITY.